Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

(REVISION 1)

CONDITIONAL MAJOR PERMIT (FINAL) NO. F-04-021
FORT JAMES OPERATING COMPANY
LEXINGTON, KY
APRIL 8, 2005
MARK LABHART, REVIEWER
PLANT I.D. # 021-067-00052
APPLICATION LOG # 55234
Agency Interest #: 1051
Activity I.D.#: APE20040002

SOURCE DESCRIPTION:
Fort James Operating Company is a wholly owned subsidiary of the Georgia Pacific Corporation. The source manufactures disposable, sanitary, food and beverage containers (paper and plastic). Emissions units at the facility are (2) flexographic presses emitting VOC, (4) polystyrene extruders emitting HAP and VOC, and (4) existing polypropylene extruders that emit VOC and PM, plus (1) additional polypropylene extruder to be added with this permit action. There are also PM emissions from various material handling processes. Criteria pollutants, NOx and CO are emitted at approximately 50% of major source thresholds from the source's numerous heating devices. Insignificant activities include truck unloading and packaging operations including bagging operations and sealing cartons.

COMMENTS:
- EP01 - Polystyrene Extruders
    - The Factor Information Retrival (FIRE) 6.22 database provided a styrene emission factor for an extrusion process of 0.2563 lbs/ton of polystyrene resin.

    - No emission factor for ethyl benzene from the extrusion process could be found in the FIRE database. However the information provided by Dow Chemical in 1987 suggests that ethyl benzene emissions are approximately equivalent to the styrene emissions. Therefore, the emission factor of 0.2563 lbs/ton was accepted for the ethyl benzene as well.

    - Regulation 401 KAR 63:020 <u>is not</u> applicable as emissions of Styrene and Ethyl Benzene will be regulated by 401 KAR 52:030. Screening was done at the 9 TPY HAP emission limitation, and the predicted concentration was below the EPA's prioritized dose response values for these chemicals.

    - PM emission factors could not be found that are specific for the polystyrene extrusion process. However particulate emission data were found for polyethylene and polypropylene extrusion processes and the numbers are similar for both types of resin.

Material	Polyethylene			Polypropylene		
Resin Type	LDPE	LDPE	LLPDE	Reactor grade homopolymer	Controlled rheology homopolymer	Reactor impact copolymer
Melt Temp. (°F)	600	500	500	570	510	505
Particulates (lbs/1E6 lbs)	242.2	30.9	59.9	218	68.4	34.5
Notes	1			2		

1. Development of Emission Factors for Polyethylene Processing, Journal of the Air and Waste Management Association, Volume 46 June 1996.
    a. LDPE = low density polyethylene
    b. LLPDE = linear low density polyethylene
2. Development of Emission Factors for Polypropylene Processing, Journal of the Air and Waste Management Association, Volume 49 January 1999.

Selection of an emission factor for the polystyrene process is based on this data, (68.4 lbs/1E6 lbs) / (500 tons/1E6 lbs) = 0.1368 lbs/ton.

- EP02 & EP03 Resin Hopper Car Unloading/Resin Silos and Regrind Holding Silos
    - These processes consist of pneumatic conveying and color sorting of raw/recycled material. No emission factor could be found for the pneumatic conveying of the plastic material. Upon installation of the equipment in 1988, Fort James proposed using PM emission factors of 0.112 lbs/ton for these processes. This emission factor was supposedly based on the document "Source Assessment, Plastic Processing, State of the Art," (EPA-600/2-78-004C). However, EPA has since retracted this document. The PM emission factor used in the POC table, (0.8 lb/ton) was taken from the FIRE 6.23 database. This emission factor is based on a value for storage of PET (polyethylene terephthalate). No credit was given in the calculations for the use of emission control devices. There are cyclones used for each of these processes, but their primary purpose is product separation and not emission reduction.

    - VOC emission factors from EIIP Volume II, Chapter 14.

- For the following items, the source provided emission factors were accepted.
    - EP02 Waste Paper Cyclone – PM emission factor provided by source, application received October 23, 1980.

    - EP07 Wax Treaters – PM emission factor provided by source, application received June 11, 2003.

    - EP14 Langston Slitter – Trim waste reported as 0.8% or 16 lb/ton, in application received Jun 16, 1992.

- The Wax Treaters (EP 07) have been listed as affected facilities on the previous permits. They are a potential source of PM emissions, estimated to be 12.6 TPY. The equipment is located inside the plant serviced only by general ventilation. There are no emission controls, vents or exhaust stacks from this equipment. Applying an assumed control efficiency of 70 percent for the building enclosure gives a PTE of 3.8 TPY. Since the potential emissions of particulates outside of the building are <5 TPY, and since the potential emissions of PM is <100 TPY, it was decided that the Wax Treaters could be listed as an insignificant activity. This decision is supported by numerous inspections to the facility in which the Wax Treaters have been observed in operation with no visible emissions.

- EP23(01) & EP23(02) Polypropylene Extruders – Emission factors taken from Article "Development of Emission Factors for Polypropylene Processing", Journal of Air & Waste Management Association, Volume 49 January 1999.
    - Emission factors given for various melt temperatures. The emission factors used where based on a 605°F melt temperature because it was the highest temperature tested and gave the largest emission factors. Actual extrusion temperatures for polypropylene should likely be in the range of 500°F.
    - PM emission factor used as reported for melt temperature of 605°F
    - VOC emission factor was multiplied by 0.60 because resin content of raw material used at Fort James is 60% with remaining 40% being inert material
    - HAP emission factors were reported in the Article above. However HAP emissions from this process were not included in the plantwide PTE calculations for 3 reasons.
        1. No HAP data listed on MSDS for resins used.
        2. Total HAP PTE calculated based on the Article data for the extrusion process was 0.8 TPY based on the 605°F data and actual emissions would only be about 0.04 TPY based on data given for a 510°F melt temperature.
        3. The source has accepted Conditional Major limitations, which will place a cap on plantwide HAP emissions. Major source thresholds will not be exceeded even if the 0.8 TPY in Item 2, above is a single HAP.

- EP24 & EP25 - Polypropylene line Storage Silos; PM emission factors for virgin material and regrind material handling equipment from resin manufacturer's provided data. No emission reductions are credited to the cyclones used, as they are a part of the material handling process and not specifically for emission control.

- The cup forming equipment has not been listed as affected facilities on previous permits. However, based on MSDS information and 2003 glue usage records, potential emissions of HAP, ethylene glycol (CAS# 107-21-1) are greater than 1000 lbs/yr. Thus the cup forming equipment cannot be considered an insignificant activity.

- Particulate filter inspections for the polystyrene and polypropylene equipment are required at monthly intervals. This time interval was selected based on a reported filter change schedule of 2-3 times per year for this equipment. (e-mail correspondence with Kraig Weber, 7/15/04).

EMISSION AND OPERATING CAPS DESCRIPTION:
Fort James Operating Company has requested voluntary permit limits of 9.0 tons per year or less of individual hazardous air pollutants (HAP) and 22.5 tons per year or less of combined HAPs. Potential VOC emissions are 40.4 TPY. No Conditional Major limitations are required for VOC.

OPERATIONAL FLEXIBILITY:
Fort James Operating Company is not restricted as to hours of operation or quantity of product produced while remaining within the caps above.

CREDIBLE EVIDENCE:
This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.